# Appendix D

# Field Measurement SOPs

**FIELD DATA COLLECTION**
**ONBOARD THE *R/V MUDPUPPY***

**Overview**
The following Standard Operating Procedures (SOPs) describe the methods for collecting the following field data during sediment sampling surveys.

- Horizontal Position of Vessel
- Water Depth
- Sediment Depth

**Horizontal Position of Vessel**
Equipment Required:
Direct readout GPS units available onboard the R/V Mudpuppy

Horizontal position of the sediment sampling vessel, the R/V Mudpuppy is performed by direct readout from two separate global positioning systems (GPS). The GPS locations are collected immediately following anchoring of the vessel at the sampling site. Accuracy of the GPS system can be tested through the use of surveyed locational markers. However, accuracy determination for each individual project will be descirbed in the project specific QAPP.

Steps for determining horizontal position are described below.

1. Triple anchor the vessel and insure that anchor ropes are tight.
2. Field Team Leader reads and records the latitude and longitude from both GPS systems.
3. Field Team Leader reads and records the latitude/longitude reference datum (WGS84, NAD27, NAD83, etc.)
4. Ship Captain reads and records the latitude/longitude location from the GPS system mounted on the ships control panel.
5. Field Team Leader confirms that the captain and the Field Team Leader have recorded identical latitude/longitude information.
6. Collect Sample.

**Wtater Depth**

Equipment required:
Weighted tape measure.

Water depth data is collected utilizing a weighted tape measure. Readout of the tape measure is in either feet and decimal feet, or feet and inches. Care should be take to insure that proper units are recored.

Steps for determining water depth position are described below.

1. Triple anchor the vessel and insure that anchor ropes are tight.
2. Drop weighted end of tape measure to the bottom of the water body. Bottom can be easily felt by feeling for a "bump" as the weight reaches the bottom.
3. Slightly lift and drop weight several times to insure that the weight is on the bottom.

4. Read off depth measurement. Note: If conditions are wavy, the depth measurement is determined by the average of the high and low water depths as the wave cycles past the boat.

**Sediment Depth**

Equipment Required:

Sediment depth poles with markings at 1-foot increments.

Sediment depth data is collected utilizing a series of metal sediment poles that can be screwed together to reach a maximum depth of 36-feet. This measurement is accurate to approximately 0.5 feet.

Steps for determining water depth position are described below.

1. Triple anchor the vessel and insure that anchor ropes are tight.
2. Lower sediment probe poles to the bottom of the water body. Bottom can be easily felt by feeling for a "bump" as the weight reaches the bottom.
3. Record bottom depth to nearest 0.5 feet.
4. Push sediment probe through the sediments using heavy pressure, until probe no longer advances into the sediements.
5. Record total depth to nearest 0.5 feet.
6. Subtract bottom depth from total depth to obtain sediment depth.
7. Record sediment depth.